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ABSTRACT

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PERSONALITY RESEARCH FORM:

FACTOR STRUCTURE AND RESPONSE STYLE INVOLVEMENT

Lawrence J. Stricker

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Educational Testing Service
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Personality Research Form: Factor Structure and Response Style Involvement

Lawrence J. Stricker

Abstract

The aims of this study were (a) to explore the factor structure of the Personality Research Form (PRF) and (b) to examine the inventory's relations with response styles. In general, the PRF content scales correlated moderately with each other and with measures of acquiescence, social desirability, and defensiveness response biases. Six oblique factors, identified as conscientiousness, hostility, ascendance, dependence, imagination, and carefreeness, were found in a principal axis analysis of the content scales. The stylistic measures' estimated loadings on these factors were scattered and moderate. Several factors were similar to the categorization of scales in the PRF manual as well as the factors previously obtained by Edwards, Abbott, and Klockars.

Personality Research Form: Factor Structure and Response Style Involvement[1]

The Personality Research Form (PRF; Jackson, 1967) is a comparatively new personality inventory that measures 20 variables stemming from Murray's (1938) system of needs as well as two control variables--infrequent responding and social desirability (SD). This instrument was constructed by specially developed procedures which were designed to insure that its scales were very homogeneous, relatively independent of each other, and minimally influenced by acquiescence and SD response styles (Jackson, 1970).

Although the PRF has been used in a variety of studies in the last few years, comparatively little is still known about the structure of its scales or their involvement with response biases. Data about the interrelations among the scales are especially sparse. The PRF manual (Jackson, 1967) reports that just seven of the 231 intercorrelations among the scales exceeded $\pm$.50 in one investigation. Similarly, only six of the intercorrelations given in the manual for the male normative sample and seven of those for the female one were greater than .50. The manual also classifies the scales into seven categories on the basis of theoretical considerations and, to some extent, unpublished factor analyses. A principal components analysis of this inventory with the Edwards Personal Preference Schedule (EPPS; Edwards, 1959) as well as measures of SD and defensiveness, a distinct but related response style (see the review by Wiggins, 1968), found that the PRF scales defined or substantially loaded each of the 11 orthogonal factors extracted (Edwards, Abbott & Klockars, 1972). However, four factors were loaded by a single PRF scale and one or more EPPS or response bias scales, suggesting that fewer factors would

have been obtained if only the PRF were analyzed. Three factors closely resembled categories in the PRF manual (Factor I and Impulse Expression and Control, Factor V and Orientation toward Work and Play, and Factor VI and Intellectual and Aesthetic Orientations). The PRF was also included in several multimethod factor analyses with ratings and other tests (Jackson, 1967; Siess & Jackson, 1970; Trott & Morf, 1972), but this analytic method focuses on the relations between the PRF and the other variables, rather than describing the inventory's structure (Jackson, 1969).

Somewhat more is known about the PRF's links with response styles. Although acquiescence has not been systematically investigated, several studies bear on SD and defensiveness response biases. The PRF manual observes that the PRF Desirability scale had a median absolute correlation of .20 with the content scales in one investigation. This finding is consistent with the generally moderate correlations presented in the manual between this scale and the content scales in the two normative samples. It is noteworthy that the Desirability scale consistently correlated highest with the Achievement, Aggression, and Endurance scales. Moderate correlations are also reported in the manual between California Psychological Inventory (Gough, 1957) scales tapping SD (Cm) as well as defensiveness (Gi and Wb) response styles and the PRF content scales. Interestingly, these response bias measures were also linked with the Achievement, Aggression, and Endurance scales. The Cm scale's highest correlation was with the Aggression scale, and the Wb and Gi scales consistently correlated highest with the Achievement and Endurance scales. In the previously described factor analysis (Edwards et al., 1972), the PRF Aggression and

Defendence scales had their highest loadings on a factor defined by SD and defensiveness scales--Edwards' (1957) SD, PRF Desirability, and Marlowe-Crowne SD (Crowne & Marlowe, 1960). The PRF Dominance, Exhibition, and Play scales also appeared on factors that were loaded but not defined by scales measuring SD response style--Edwards' SD, PRF Desirability, Welsh's (1956) R. And in a multimethod factor analysis (Trott & Morf, 1972) with the Minnesota Multiphasic Personality Inventory (MMPI; Hathaway & McKinley, 1951) and Differential Personality Inventory (DPI; D. N. Jackson & S. Messick, unpublished), none of the PRF scales loaded a factor defined by scales reflecting defensiveness--DPI Defensiveness and MMPI L. However, the Achievement, Affiliation, Aggression, Exhibition, and Play scales appeared on the same factors as scales tapping SD response style--DPI Desirability, MMPI F and K, but the latter measures did not define the factors.

The present study had a twofold purpose: (a) to explore the PRF's factor structure and (b) to examine the inventory's relations with acquiescence, SD, and defensiveness response styles.

Method

Subjects

The subjects, paid volunteers, were 73 adolescent boys and girls. The 27 boys were in the eleventh or twelfth grades of high school, and the 46 girls were either in these grades or had just graduated. All attended the same school in a Northeastern suburb. The results were analyzed for the 71 subjects (27 boys and 44 girls) for whom complete data were available.

Procedures

A large test battery that included the measures for this study was administered during one data gathering session for the boys and three sessions for the girls. All the boys were given both an inventory containing the response style measures and the PRF on the same day. One group of girls was administered the special inventory on the first day and the other group was given the inventory on the second one, two weeks later. All the girls received the PRF at a third session, either one day or ten days later.

Measures

A prepublication edition of PRF Form AA was used. This version was the same as the final Form AA except for the order in which the items were arranged. Scores were obtained for the 20 content scales as well as the two response style scales--Desirability and Infrequency.

The personality inventory assembled for this study included a variety of response bias measures. The SD scales were:

(a) Messick's (1962) Ds scale--Ds 1 and Ds 2 scales were combined.

(b) Stricker's (1963) SD scale.

The defensiveness scales were:

(a) Wiggins' (1959) Sd scale--revised by reversing 11 randomly selected "true" keyed items so that the scale was balanced in keying.

(b) Marlowe-Crowne (Crowne & Marlowe, 1960) SD scale.

The acquiescence measures were:

(a) Wiggins' (1962) Rb scale.

(b) Messick's (1962) Ac scale--Ac 1 and Ac 2 scales were combined.

(c) Clayton and Jackson's (1961) Tentatively Worded F scale items

(PF)--six authoritarian and six nonauthoritarian items were used, none overlapping with those on the AF scale; the score was the number of "true" responses.

(d) Clayton and Jackson's (1961) Extremely Worded F scale items (AF)--this scale paralleled the PF scale in design: it consisted of six authoritarian and six nonauthoritarian items, none corresponding to those on the PF scale, and the score was the number of "true" responses.

(e) Total True Score--the number of "true" responses on the four SD and defensiveness scales.

The sex of the subject (0 = male, 1 = female) was included as a control variable.

Statistical Analysis

Product-moment correlations were computed between the PRF scales, response style measures, and sex. The 20 x 20 correlation matrix for the PRF content scales was factor analyzed by the principal axis method. The number of factors was determined by discontinuities in the distribution of latent roots in another preliminary analysis employing as the diagonal value for each variable its squared multiple correlation with the other variables. The factor analysis was completed, using iterated communalities, and the factors were rotated to oblique simple structure by the Promax procedure (Hendrickson, 1964). Loadings of the response style measures (including the PRF Desirability and Infrequency scales) and sex on these factors were estimated by extension methods (Dwyer, 1937).

The correspondence between the factors and the categories in the PRF manual as well as the Edwards et al. (1972) factors was evaluated by the

Coefficient of Congruence. One category, Test-Taking Attitudes and Validity, was excluded from this analysis because it consisted solely of the two response style scales. Categories were quantified in the computations by assigning scale loadings of +1 if they were at one end of a category, -1 if they were at the other end, and 0 if they were not in the category.

The internal-consistency reliability of the PRF scales and response bias measures was assessed by Coefficient Alpha.

Results and Discussion[2]

Reliability and Intercorrelations

The intercorrelations of the PRF scales, response style measures, and sex together with the reliability estimates appear in Table 1.

The PRF content scales were typically quite reliable, the reliability coefficients ranging from .62 to .86. A few scales were comparatively unreliable--Abasement, .65; Change, .66; Defendence, .68; Sentience, .65; and Understanding, .62. Overall, the entire set of scales had about the same reliability as reported in the PRF manual. The response style measures were generally less reliable. The reliability coefficients ranged from .37 to .64 for the SD scales, .50 to .78 for the defensiveness measures, and .18 to .70 for the acquiescence indexes; the reliability coefficient was .59 for the PRF Infrequency scale. Some scales were very unreliable--Messick's Ds, .37; Wiggins' Rb, .18; Messick's Ac, .20; and Clayton and Jackson's PF, .24.

In general, the PRF content scales were moderately intercorrelated--only 12 of the 190 correlations were greater than .50 in absolute size.[3] The highest correlations were between these scales: Achievement and Endurance,

.69; Autonomy and Succorance, -.68; Cognitive Structure and Impulsivity, -.69; Cognitive Structure and Order, .72; and Dominance and Exhibition, .66. These results are consistent with the data on intercorrelations cited earlier, which indicated that few of the correlations between the scales were substantial (Jackson, 1967).

Several of the PRF content scales had consistent patterns of significant ($p < .05$, two tail) correlations with the response style measures. All in all, though, these correlations only accounted for a fraction of the reliable variance in the PRF scales, considering their relatively high level of reliability.[4] The scales associated with the SD measures were Achievement (Messick's Ds, .38; Stricker's SD, .32; PRF Desirability, .47), Affiliation (Stricker's SD, .25; PRF Desirability, .32), Aggression (Messick's Ds, -.43; Stricker's SD, -.35; PRF Desirability, -.39), Defendence (Messick's Ds, -.26; Stricker's SD, -.25; PRF Desirability, -.29), Endurance (Messick's Ds, .41; Stricker's SD, .27; PRF Desirability, .49), Nurturance (Messick's Ds, .42; Stricker's SD, .23; PRF Desirability, .28), and Play (Messick's Ds, -.35; Stricker's SD, -.26). The results for the Achievement, Aggression, and Endurance scales agree with the previously described correlations of these scales with SD measures (Jackson, 1967).

The PRF scales related to the defensiveness measures were Achievement (Wiggins' Sd, .35; Marlowe-Crowne SD, .40), Endurance (Wiggins' Sd, .39; Marlowe-Crowne SD, .51), Nurturance (Wiggins' Sd, .41; Marlowe-Crowne SD, .33), and Order (Wiggins' Sd, .35; Marlowe-Crowne SD, .33). The correlational findings discussed earlier also indicated that the Achievement and Endurance scales were associated with defensiveness measures (Jackson, 1967).

The PRF scales linked with the acquiescence measures were Autonomy (Wiggins' Rb, -.36; Clayton and Jackson's AF, -.26; Total True, -.28), Cognitive Structure (Messick's Ac, .23; Clayton and Jackson's AF, .36; Clayton and Jackson's PF, .30; and Total True, .24), Nurturance (Wiggins' Rb, .27; Messick's Ac, .27; Total True, .50), Order (Messick's Ac, .27; Clayton and Jackson's AF, .31; Clayton and Jackson's PF, .31; and Total True, .45), and Understanding (Wiggins' Rb, -.26; Clayton and Jackson's AF, -.39; Clayton and Jackson's PF, -.25).

None of the PRF scales correlated significantly with the PRF Infrequency scale.

Several PRF scales correlated significantly but moderately with sex--Abasement (.42), Affiliation (.28), Aggression (-.26), Cognitive Structure (-.29), Defendence (-.29), Nurturance (.30), and Sentience (.42).

Insert Table 1 about here

Factor Analysis

The distribution of latent roots in the preliminary factor analysis is shown in Figure 1. Six factors were identified. After iteration, the unrotated factors accounted for 18%, 17%, 14%, 10%, 4%, and 3%, respectively, of the total variance.

Insert Figure 1 about here

The correlations between the rotated factors appear in Table 2--Factor II was reflected for ease of interpretation. The correlations were generally moderate, ranging from -.57 to .37.

Insert Table 2 about here

The rotated factor loadings (i.e., correlations with reference vectors) and communalities of the PRF content scales are reported in Table 3. The estimated loadings and communalities of the response style measures and sex also appear in this table. The Coefficients of Congruence between the factors and the PRF manual's categories as well as the Edwards et al. factors are reported in Table 4. Salient loadings ($\geq |.30|$) of the PRF content scales and other variables on these factors are listed below.

Insert Tables 3 and 4 about here

Factor I.	
Cognitive Structure	.76
Order	.72
Endurance	.32
Understanding	-.31
Impulsivity	-.62
Clayton and Jackson's PF	.45
Total True	.43
Clayton and Jackson's AF	.42
Marlowe-Crowne SD	.32

Factor I appears to reflect conscientiousness. It is noteworthy that three acquiescence measures loaded, but not define, this factor. Factor I corresponds closely to the PRF manual's category, Impulse Expression and Control, and the Edwards et al. Factor I.

Factor II.	
Defendence	.74
Aggression	.45
Nurturance	-.37
Abasement	-.42
Affiliation	-.56
Total True	-.45
PRF Desirability	-.41
Marlowe-Crowne SD	-.38

This factor seems to involve hostility. Several different kinds of response style measures loaded Factor II without defining it. Factor II is similar to the manual's category, Degree and Quality of Interpersonal Orientation, and the Edwards et al. Factor III.

Factor III.	
Exhibition	.76
Dominance	.74
Abasement	-.39
PRF Desirability	.42
Total True	.30

This is clearly an ascendance factor. Once again, response bias measures had only minor loadings. Factor III resembles the manual's category, Degree of Ascendency, and the Edwards et al. Factor IV.

Factor IV.

Succorance	.73
Social Recognition	.58
Harmavoidance	.45
Autonomy	-.56

The pattern of loadings suggests that this factor is dependence. Factors IV and V are the only ones without any loadings for response style measures. Factor IV is similar to the manual's category, Orientation towards Direction from Other People, and the Edwards et al. Factor II.

Factor V.

Sentience	.60
Change	.33
Nurturance	.32

Sex	.37

Factor V may reflect imagination, despite the absence of the Understanding and Cognitive Structure scales from this factor. Although no response bias measures loaded Factor V, it is the only one loaded by sex. This factor most resembles the manual's category, Intellectual and Aesthetic Orientations, and the Edwards et al. Factor VI, but the match is not close--Factor V has only one scale in common with the manual's category or the salients on the Edwards et al. factor.

Factor VI.	
Play	.69
Understanding	-.45
Clayton and Jackson's PF	.44
Wiggins' Rb	.36
Clayton and Jackson's AF	.32
Stricker's SD	-.33

The loadings for Factor VI indicate that it may be carefreeness. Interestingly, several acquiescence scales moderately loaded this factor but did not define it. Factor VI corresponds most closely to the manual's category, Orientation toward Work and Play, and the Edwards et al. Factor VII. As in the case of Factor V, though, the correspondence is not great--Factor VI shares only one scale with the manual's category or the Edwards et al. factor.

Conclusions

The present findings about both the structure of the PRF and its associations with response styles were reasonably clear-cut and largely consistent with previous results, despite the comparatively small sample employed. The minor relationships of sex with the scales and factors indicate that pooling boys and girls in the analyses did not seriously distort the data.

One striking finding was that this inventory encompasses a relatively wide range of distinct variables, judging from the predominantly moderate

intercorrelations among the scales and the emergence of six factors--several closely resembling the categories in the PRF manual and previously identified factors (Edwards et al., 1972). At the same time, the relationships that existed among the scales, at both the correlational and factor analytic levels, seemed consistent with the nature of the variables that they represent. These outcomes suggest that the development of the PRF succeeded in making the scales reasonably independent of each other without adversely affecting their correspondence with the underlying trait framework.

Many of the PRF factors in this study appeared similar to those identified in other inventories, particularly the EPPS and Comrey Personality Scales (Comrey, 1970). Substantial agreement between the factor composition of the PRF and EPPS has already been established--their corresponding scales consistently had high loadings on the same factor (Edwards et al., 1972). Parallel investigations of the PRF's convergence with the Comrey Personality Scales and other instruments seem in order.

Another important outcome concerned the limited role of response styles on the PRF. In line with previous findings, the various kinds of response bias measures were only moderately related to the PRF content scales, with a few exceptions, and did not define any of the factors. This situation, which is probably due, at least in part, to the unusual methods employed in developing this inventory, contrasts sharply with the experience with other devices, such as the MMPI, that did not attempt to minimize stylistic influences during their construction. Studies of the MMPI have commonly found that acquiescence, SD, and defensiveness response biases apparently account for a substantial portion of its variance (e.g., Edwards & Diers, 1962; Edwards, Diers & Walker, 1962; Messick & Jackson, 1961).

The associations that were observed between some PRF scales and response style measures may indicate that these scales are somewhat contaminated by the response biases, or, alternatively, that the personality variables tapped by the PRF scales are substantively related to the response styles. It is not possible to choose between these conflicting interpretations at this juncture.

It should be mentioned that some recent research (Bentler, Jackson, & Messick, 1971) suggests that it may be important to distinguish between two kinds of acquiescence: agreement acquiescence and acceptance acquiescence. The acquiescence indexes in the present study confound the two and it is uncertain whether the same results would be obtained if separate measures of each form of this response style were used. It would obviously be worthwhile to include such scales in future efforts of this nature.

References

Bentler, P. M., Jackson, D. N., & Messick, S. Identification of content and style: A two-dimensional interpretation of acquiescence. Psychological Bulletin, 1971, 76, 186-204.

Clayton, M. B., & Jackson, D. N. Equivalence range, acquiescence, and over-generalization. Educational and Psychological Measurement, 1961, 21, 371-382.

Comrey, A. L. EITS Manual for the Comrey Personality Scales. San Diego, Calif.: Educational and Industrial Testing Service, 1970.

Crowne, D. P., & Marlowe, D. A new scale of social desirability independent of psychopathology. Journal of Consulting Psychology, 1960, 24, 349-354.

Dwyer, P. S. The determination of the factor loadings of a given test from the known factor loadings of other tests. Psychometrika, 1937, 2, 173-178.

Edwards, A. L. The social desirability variable in personality assessment and research. New York: Dryden, 1957.

Edwards, A. L. Manual for the Edwards Personal Preference Schedule. New York: Psychological Corporation, 1959.

Edwards, A. L., Abbott, R. D., & Klockars, A. J. A factor analysis of the EPPS and PRF personality inventories. Educational and Psychological Measurement, 1972, 32, 23-29.

Edwards, A. L., & Diers, C. J. Social desirability and the factorial interpretation of the MMPI. Educational and Psychological Measurement, 1962, 22, 501-509.

Edwards, A. L., Diers, C. J., & Walker, J. N. Response sets and factor loadings on sixty-one personality scales. Journal of Applied Psychology, 1962, 46, 220-225.

Gough, H. G. Manual for the California Psychological Inventory. Palo Alto, Calif.: Consulting Psychologists Press, 1957.

Hathaway, S. R., & McKinley, J. C. Manual, Minnesota Multiphasic Personality Inventory (Rev. ed.). New York: Psychological Corporation, 1951.

Hendrickson, A. E. Promax: An oblique rotation program. Behavioral Science, 1964, 9, 288-289.

Jackson, D. N. Personality Research Form Manual. Goshen, N. Y.: Research Psychologists Press, 1967.

Jackson, D. N. Multimethod factor analysis in the evaluation of convergent and discriminant validity. Psychological Bulletin, 1969, 72, 30-49.

Jackson, D. N. A sequential system for personality scale development. In C. D. Spielberger (Ed.), Current topics in clinical and community psychology. Vol. 2. New York: Academic Press, 1970. Pp. 61-96.

Messick, S. Response style and content measures from personality inventories. Educational and Psychological Measurement, 1962, 22, 41-56.

Messick, S., & Jackson, D. N. Acquiescence and the factorial interpretation of the MMPI. Psychological Bulletin, 1961, 58, 299-304.

Murray, H. A. Explorations in personality. New York: Oxford University Press, 1938.

Siess, T. F., & Jackson, D. N. Vocational interests and personality: An empirical integration. Journal of Counseling Psychology, 1970, 17, 27-35.

Stricker, L. J. Acquiescence and social desirability response styles, item characteristics, and conformity. Psychological Reports, 1963, 12, 319-341. (Monogr. Suppl. 2-V12.)

Trott, D. M., & Morf, M. E. A multimethod factor analysis of the Differential Personality Inventory, Personality Research Form, and Minnesota Multiphasic Personality Inventory. Journal of Counseling Psychology, 1972, 19, 94-103.

Welsh, G. S. Factor dimensions A and R. In G. S. Welsh and W. G. Dahlstrom (Eds.), Basic readings on the MMPI in psychology and medicine. Minneapolis, Minn.: University of Minnesota Press, 1956. Pp. 264-281.

Wiggins, J. S. Interrelationships among MMPI measures of dissimulation under standard and social desirability instructions. Journal of Consulting Psychology, 1959, 23, 419-427.

Wiggins, J. S. Definitions of social desirability and acquiescence in personality inventories. In S. Messick and J. Ross (Eds.), Measurement in personality and cognition. New York: Wiley, 1962. Pp. 109-127.

Wiggins, J. S. Personality structure. In P. R. Farnsworth (Ed.), Annual Review of Psychology. Vol. 19. Palo Alto, Calif.: Annual Reviews, 1968. Pp. 293-350.

Footnotes

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[2]Tables containing the attenuation-corrected intercorrelations of the PRF scales, response style measures, and sex; unrotated factor matrix; and transformation matrix are available from the author.

[3]When the correlations were corrected for attenuation, only 35 exceeded .50.

[4]Overall, the median correlation (ignoring signs) of each SD scale with the PRF content scales ranged from .16 to .20. When the original correlations were corrected for attenuation in both variables, the medians ranged from .24 to .36. The corresponding ranges were .13 to .24 and .22 to .31 for the defensiveness measures, and .07 to .18 and .18 to .47 for the acquiescence indexes. The medians for the PRF Infrequency scale were .10 and .14.

Table 1

Intercorrelations and Reliability of PRF Scales, Response Style Measures, and Sex

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
PRF Content Scales:																																
1. Abasement	(65)	-16	32	-50	-28	-10	-12	-54	-47	-08	-33	08	23	43	-07	05	19	-21	22	00	-02	-20	-10	08	06	10	05	13	05	08	13	42
2. Achievement	-16	(73)	00	-23	00	09	23	-06	41	69	12	14	-39	25	34	-40	32	-13	-15	30	38	32	47	35	40	02	17	-07	01	30	-21	03
3. Affiliation	32	00	(81)	-31	-41	12	-31	-54	06	07	29	03	36	59	-05	21	15	05	47	00	17	25	32	19	25	35	22	05	02	44	-18	28
4. Aggression	-50	-23	-31	(78)	33	12	-17	56	29	-38	44	-21	23	-52	-23	27	-26	20	-13	-06	-43	-35	-39	-20	-54	-08	-04	-14	01	-38	09	-26
5. Autonomy	-28	00	-41	33	(78)	33	-06	40	18	13	06	-45	-12	-49	-18	00	-08	34	-68	30	-30	-19	-11	-07	-04	-36	-14	-26	-06	-28	12	-06
6. Change	-10	09	12	12	33	(66)	-47	12	40	25	31	-49	30	08	-27	28	31	-17	-24	26	05	-04	15	-04	-01	-05	04	-26	05	-02	04	20
7. Cognitive Structure	-12	23	-31	-17	-06	-47	(80)	11	-09	14	-25	43	-69	-04	72	-30	-22	15	-05	-22	19	-08	-16	13	23	00	23	36	30	24	-03	-29
8. Defendence	-54	-06	-54	56	40	12	11	(68)	15	-12	05	-10	-16	-54	-07	05	-21	21	-28	-02	-26	-25	-29	-12	-35	-14	-03	-08	07	-32	05	-29
9. Dominance	-47	41	06	29	18	40	-09	15	(86)	44	66	-25	00	06	08	-03	11	06	-18	20	19	18	33	24	04	20	08	-23	-01	19	01	-13
10. Endurance	-08	69	07	-38	13	25	14	-12	44	(75)	13	00	-34	27	24	-20	24	-24	-22	28	41	27	49	39	51	09	09	-12	01	35	-07	16
11. Exhibition	-33	12	29	44	06	31	-25	05	66	13	(79)	17	32	01	11	34	03	30	18	02	-05	00	15	06	-24	33	17	-22	-09	07	-05	-08
12. Harmavoidance	08	14	03	-21	-45	-49	43	-10	-25	00	-17	(80)	-35	12	35	-22	-12	28	35	-05	20	05	08	07	15	02	12	24	06	12	-11	07
13. Impulsivity	23	-39	36	23	-12	30	-69	-16	00	-34	32	-35	(72)	08	-62	48	10	12	28	-07	-32	-15	-10	-19	-38	34	-02	-11	-07	-18	16	21
14. Nurturance	43	25	59	-52	-49	08	-04	-54	06	27	01	12	08	(76)	13	01	47	02	43	10	42	23	28	41	33	27	27	17	11	50	-05	30
15. Order	-07	34	-05	-23	-18	-27	72	-07	08	24	-11	35	-62	13	(85)	-21	-07	04	-11	-11	54	08	09	35	35	05	27	31	31	45	-15	-13
16. Play	05	-40	21	27	00	28	-30	05	-03	-20	34	-22	48	01	-21	(78)	00	15	20	-38	-35	-26	-22	-10	-28	37	-16	05	13	-05	16	14
17. Sentience	19	32	15	-26	-08	31	-22	-21	11	24	03	-12	10	47	-07	00	(65)	-18	15	37	15	13	14	13	13	16	22	-17	-12	03	00	42
18. Social Recognition	-21	-13	05	20	-34	-17	15	21	06	-24	30	28	12	02	04	15	-18	(79)	44	-24	00	-03	-12	-08	-29	19	11	22	11	05	-11	-12
19. Succorance	22	-15	47	-13	-68	-24	-05	-28	-18	-22	18	35	28	43	-11	20	15	44	(80)	-17	07	12	-08	-07	-02	37	11	08	-10	12	03	20
20. Understanding	00	30	00	-06	30	26	-22	-02	20	28	02	-05	-07	10	-11	-38	37	-24	-17	(62)	02	16	23	17	13	-26	-01	-39	-25	-08	-12	10
Response Style Measures:																																
21. Messick's Ds	-02	38	17	-43	-30	05	19	-26	19	41	-05	20	-32	42	34	-35	15	00	07	02	(37)	50	50	27	42	00	18	-04	01	54	-17	02
22. Stricker's SD	-20	32	25	-35	-19	-04	-08	-25	18	27	00	05	-15	23	08	-26	13	-03	12	16	50	(64)	63	10	42	-11	-14	-17	-38	32	-18	-06
23. PRF Desirability	-10	47	32	-39	-11	15	-16	-29	33	49	15	08	-10	28	09	-22	14	-12	-08	23	50	63	(57)	18	36	-01	-01	-22	-25	32	-19	-04
24. Wiggins' Sd	08	35	19	-20	-07	-04	13	-12	24	39	06	07	-19	41	35	-10	13	-08	-07	17	27	10	18	(50)	44	18	11	09	12	67	09	-02
25. Marlowe-Crowne SD	06	40	25	-54	-04	-01	23	-35	04	51	-24	15	-38	33	33	-28	13	-29	-02	13	42	42	36	44	(78)	-06	-11	12	-01	65	03	26
26. Wiggins' Rb	10	02	35	-08	-36	-05	00	-14	20	09	33	02	34	27	05	37	16	19	37	-26	00	-11	-01	18	-06	(18)	24	25	24	33	-08	03
27. Messick's Ac	05	17	22	-04	-14	04	23	-03	08	09	17	12	-02	27	27	-16	22	11	11	-01	18	-14	-01	11	-11	24	(20)	24	32	21	-25	04
28. Clayton and Jackson's AF	13	-07	05	-14	-26	-26	36	-08	-23	-12	-22	24	-11	17	31	05	-17	22	08	-39	-04	-17	-22	09	12	23	24	(54)	55	32	00	-10
29. Clayton and Jackson's PF	05	01	02	01	-06	05	30	07	-01	01	-09	06	-07	11	31	13	-12	11	-10	-25	01	-38	-25	12	-01	24	32	55	(24)	27	-05	00
30. Total True	08	30	44	-38	-28	-02	24	-32	19	35	07	12	-18	50	45	-05	03	05	12	-08	54	32	32	67	65	33	21	32	27	(70)	-14	07
31. PRF Infrequency	13	-21	-18	09	12	04	-03	05	01	-07	-05	-11	16	-05	-15	16	00	-11	03	-12	-17	-18	-19	09	03	-08	-25	00	-05	-14	(59)	-09
32. Sex	42	03	28	-26	-06	20	-29	-29	13	16	-08	07	21	30	-13	14	42	-12	20	10	02	-06	-04	-02	26	03	04	-10	00	07	-09	(-)

Note.--Decimal points have been omitted. Internal-consistency reliability coefficients appear in parentheses. Correlations of .23 and .30 are significant at the .05 and .01 levels (two tail), respectively.

Table 2

Intercorrelations of Obliquely Rotated PRF Factors

Factor	II[a]	III	IV	V	VI
I	-.07	-.08	.00	.07	-.57
II		.14	-.26	-.42	.01
III			-.18	.37	.10
IV				-.30	.22
V					-.21

[a]Factor II has been reflected.

Table 3

Obliquely Rotated Factor Loadings of PRF Scales, Response Style Measures, and Sex

Variable	Factor I	II[a]	III	IV	V	VI	h^2
PRF Content Scales:							
Abasement	-.12	-.42	-.39	-.08	.05	.07	.59
Achievement	.29	-.02	.28	.02	.25	-.22	.67
Affiliation	-.16	-.56	.28	.11	-.08	.05	.64
Aggression	-.22	.45	.28	.08	-.13	.03	.71
Autonomy	-.07	.25	.02	-.56	-.02	.00	.69
Change	-.18	.10	.15	-.26	.33	.21	.62
Cognitive Structure	.76	.12	-.08	.09	-.08	.12	.81
Defendence	.08	.74	-.05	.12	.19	.09	.72
Dominance	.05	.01	.74	-.05	-.01	-.07	.79
Endurance	.32	-.16	.28	-.22	.19	-.05	.64
Exhibition	-.11	-.05	.76	.15	-.11	.08	.80
Harmavoidance	.26	.00	-.08	.45	-.02	-.17	.51
Impulsivity	-.62	-.15	.08	.07	-.02	.10	.77
Nurturance	.08	-.37	.00	.24	.32	.08	.74
Order	.72	-.09	.09	-.01	-.08	.16	.64
Play	.04	.04	.01	-.02	.07	.69	.73
Sentience	-.12	.07	-.16	.15	.60	-.01	.54
Social Recognition	.06	.23	.18	.58	.01	.07	.51
Succorance	-.14	-.07	-.01	.73	.16	.02	.80
Understanding	-.31	.07	.03	-.04	.27	-.45	.49
Response Style Measures:							
Messick's Ds	.29	-.23	.16	.08	.09	-.10	.40
Stricker's SD	-.06	-.25	.25	.08	-.04	-.33	.28
PRF Desirability	-.02	-.41	.42	-.12	-.08	-.29	.48
Wiggins' Sd	.28	-.21	.20	-.06	.07	.02	.28
Marlowe-Crowne SD	.32	-.38	.05	-.23	.00	-.07	.50
Wiggins' Rb	.16	-.16	.22	.22	.06	.36	.41
Messick's Ac	.18	-.01	.11	.20	.15	.04	.14
Clayton and Jackson's AF	.42	-.09	-.14	.08	-.10	.32	.33
Clayton and Jackson's PF	.45	.02	-.06	-.07	.02	.44	.25
Total True	.43	-.45	.30	-.05	-.10	.18	.54
PRF Infrequency	-.02	.08	-.16	-.09	.06	.19	.08
Sex	-.12	-.10	-.25	.05	.37	.12	.35

Note.--These loadings are actually correlations with reference vectors. The loadings of the response style measures and sex have been estimated by extension methods.

[a]Factor II has been reflected.

Table 4

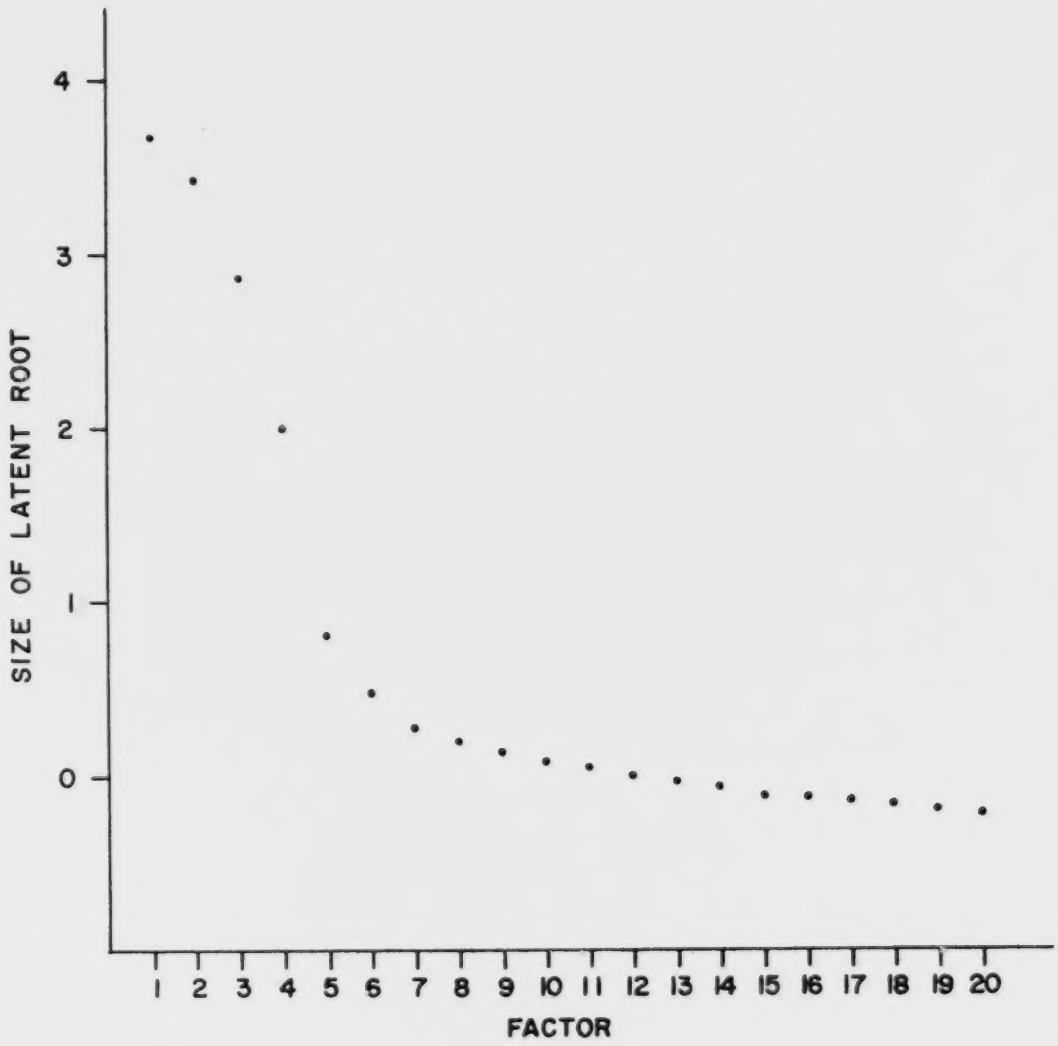
Coefficients of Congruence Between This Study's Factors, PRF Manual's Categories, and Edwards, Abbott, and Klockars Factors

Variable	This Study's Factor					
	I	II[a]	III	IV	V	VI
PRF Manual Categories:						
Impulse Expression and Control	-.80	-.03	.10	-.25	.24	.09
Orientation Toward Work and Play	.23	-.10	.24	-.08	.23	-.59
Orientation Towards Direction from Other People	-.03	-.18	-.02	.71	.14	.01
Intellectual and Aesthetic Orientations	-.21	.08	-.07	.06	.66	-.34
Degree of Ascendancy	.08	.24	.61	.02	-.05	-.10
Degree and Quality of Interpersonal Orientation	.00	-.63	.31	.28	.04	.07
Edwards, Abbott, and Klockars Factors:						
Factor I	-.85	-.16	.08	-.30	.30	.10
Factor II	.07	-.44	.18	.82	.15	.24
Factor III	.10	-.85	-.29	-.26	.09	-.07
Factor IV	.13	.18	.91	-.01	.01	-.06
Factor V	.22	-.07	.38	-.32	.52	-.29
Factor VI	.12	.09	-.02	.19	-.69	.47
Factor VII	.29	.17	-.30	-.06	-.13	-.71
Factor VIII	.02	-.11	-.65	-.33	.18	-.48
Factor IX	.03	-.49	-.41	-.07	-.06	-.24
Factor X	-.27	.13	.11	-.23	.62	.26
Factor XI	-.02	-.12	-.19	-.34	.03	.24

[a]Factor II has been reflected.

Figure Caption

Fig. 1. Latent roots in preliminary factor analysis.


SIZE OF LATENT ROOT
4
3
2
1
0
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20
FACTOR

A P P E N D I X

Table A

Attenuation-Corrected Intercorrelations of PRF Scales, Response Style Measures, and Sex

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
PRF Content Scales:																																
1. Abasement		-.24	.44	-.70	-.39	-.16	-.16	-.81	-.63	-.11	-.46	.11	.33	.61	-.09	.07	.30	-.29	.30	.00	-.05	-.30	-.16	.15	.09	.30	.15	.21	.11	.12	.21	.52
2. Achievement	-.24		.01	-.31	.00	.13	.31	-.08	.52	.93	.15	.18	-.54	.34	.43	-.53	.47	-.18	-.20	.44	.74	.47	.72	.58	.53	.05	.44	-.11	.02	.42	-.31	.03
3. Affiliation	.44	.01		-.59	-.51	.16	-.38	-.73	.08	.09	.36	.03	.47	.75	-.06	.26	.20	.06	.58	.00	.30	.34	.48	.30	.32	.91	.54	.08	.04	.58	-.26	.32
4. Aggression	-.70	-.31	-.39		.42	.17	-.21	.77	.35	-.50	.56	-.26	.31	-.68	-.28	.34	-.37	.25	-.17	-.08	-.80	-.50	-.59	-.33	-.69	-.22	-.10	-.22	.02	-.51	.13	-.29
5. Autonomy	-.39	.00	-.51	.42		.46	-.08	.55	.22	.17	.07	-.56	-.15	-.64	-.22	.00	-.12	-.43	-.86	.43	-.57	-.27	-.17	-.12	-.05	-.95	-.36	-.40	-.14	-.38	.17	-.07
6. Change	-.16	.13	.16	.17	.46		-.65	.16	.52	.35	.43	-.67	.44	.11	-.36	.39	.47	-.24	-.32	.40	.11	-.06	.25	-.07	-.02	-.14	.11	-.43	.12	-.03	.06	.24
7. Cognitive Structure	-.16	.31	-.38	-.21	-.08	-.65		.19	-.11	.18	-.31	.54	-.90	-.05	.88	-.39	-.30	.19	-.06	-.31	.35	-.11	-.24	.21	.29	.00	.56	.55	.68	.33	-.04	-.32
8. Defendence	-.81	-.08	-.73	.77	.55	.18	.19		.20	-.17	.07	-.13	-.23	-.76	-.09	.07	-.31	.29	-.38	-.03	-.51	-.38	-.47	-.20	-.48	-.38	-.08	-.14	.18	-.47	.08	-.36
9. Dominance	-.63	.52	.08	.35	.22	.52	-.11	.20		.55	.80	-.30	.00	.07	.04	-.03	.15	.08	-.22	.28	.34	.24	.47	.37	.04	.49	.19	-.33	-.03	.25	.02	-.14
10. Endurance	-.11	.93	.09	-.50	.17	.35	.18	-.17	.55		.17	.00	-.47	.36	.30	-.26	.34	-.31	-.28	.41	.78	.38	.75	.63	.66	.25	.22	-.18	.03	.48	-.10	.19
11. Exhibition	-.46	.15	.36	.46	.07	.43	-.31	.07	.80	.17		-.21	.42	.02	-.13	.43	.05	.38	.22	.02	-.09	.00	.22	.09	-.30	.86	.42	-.33	-.20	.10	-.07	-.09
12. Harmavoidance	.11	.18	.03	-.26	-.56	-.67	.54	-.13	-.30	.00	-.21		-.46	.16	.43	-.27	-.17	.36	.44	-.07	.36	.06	.12	.10	.19	.06	.30	.37	.14	.15	-.15	.08
13. Impulsivity	.33	-.54	.47	.31	-.15	.44	-.90	-.23	.00	-.47	.42	-.46		.10	-.79	.64	.14	.15	.37	-.10	-.62	-.23	-.16	-.32	-.50	.94	-.05	-.17	-.18	-.25	.25	.29
14. Nurturance	.61	.34	.75	-.68	-.64	.11	-.05	-.76	.07	.36	.02	.16	.10		.16	.02	.67	.03	.56	.14	.80	.34	.44	.67	.42	.71	.68	.26	.25	.68	-.07	.35
15. Order	-.09	.43	-.06	-.28	-.24	-.31	.88	-.09	.09	.30	-.13	.43	-.79	.16		-.25	-.10	.05	-.13	-.15	.61	.11	.13	.54	.41	.13	.64	.45	.68	.58	-.21	-.14
16. Play	.07	-.53	.26	.34	.00	.39	-.39	.07	-.05	-.26	.43	-.27	.64	.02	-.25		-.01	.19	.26	-.55	-.65	-.37	-.33	-.16	-.36	.98	-.41	.08	.30	-.06	.23	.16
17. Sentience	.30	.47	.20	-.37	-.12	.47	-.30	-.31	.15	.34	.05	-.17	.14	.67	-.10	-.01		-.25	.21	.58	.30	.20	.24	.23	.19	.45	.60	-.30	-.30	.05	.00	.52
18. Social Recognition	-.29	-.18	.06	.25	-.43	-.24	.19	.29	.08	-.31	.58	.36	.15	.03	.05	.19	-.25		.55	-.35	.01	-.04	-.18	-.12	-.36	.50	.28	.34	.26	.06	-.16	-.13
19. Succorance	.30	-.20	.58	-.17	-.86	-.31	-.06	-.38	-.22	.28	.22	.44	.37	.56	-.13	.26	.21	.55		-.24	.12	.17	-.12	-.11	-.02	.95	.26	.12	-.22	.17	.04	.23
20. Understanding	.00	.44	.00	-.08	.13	.40	-.31	-.03	.28	.41	.02	-.07	-.10	.14	-.15	-.55	.58	-.35	-.24		.05	.25	.39	.30	.18	-.77	-.02	-.68	-.66	-.12	-.20	.12
Response Style Measures:																																
21. Messick's Ds	-.05	.74	.30	-.80	-.57	.11	.35	-.51	.34	.78	-.09	.36	-.62	.80	.61	-.65	.30	.01	.12	.05		1.02	1.09	.63	.78	-.01	.66	-.10	.04	1.07	-.36	.04
22. Stricker's SD	-.30	.47	.34	-.50	-.27	-.06	-.11	-.38	.24	.38	.00	.06	-.23	.34	.11	-.37	.20	-.04	.17	.25	1.02		1.05	.18	.59	-.31	-.37	-.28	-.96	.47	-.30	-.07
23. PRF Desirability	-.16	.72	.48	-.59	-.17	.25	-.24	-.47	.47	.75	.22	.12	-.16	.44	.13	-.33	.24	-.18	-.12	.39	1.09	1.05		.34	.54	-.03	-.03	-.39	-.68	.80	-.33	-.05
24. Wiggins' Sd	.15	.58	.30	-.35	-.12	-.07	.21	-.20	.37	.63	.09	.10	-.32	.67	.54	-.16	.23	-.12	-.11	.30	.63	.18	.34		.71	.61	.35	.17	.35	1.13	.16	-.02
25. Marlowe-Crowne SD	.09	.53	.32	-.69	-.05	-.03	.29	-.48	.04	.66	-.30	.19	-.50	.42	.41	-.36	.19	-.36	-.02	.18	.78	.59	.94	.71		-.15	-.26	.19	-.03	.88	.05	.29
26. Wiggins' Rb	.30	.05	.91	-.82	-.95	-.14	.00	-.38	.49	.25	.86	.06	.94	.71	.13	.98	.45	.50	.95	-.77	-.01	-.51	-.03	.61	-.15		1.25	.72	1.14	.91	-.26	.08
27. Messick's Ac	.15	.44	.54	-.10	-.36	.11	.56	-.08	.19	.22	.42	.30	-.05	.68	.64	-.41	.60	.28	.26	-.02	.66	-.37	-.03	.35	-.26	1.25		.73	1.46	.55	-.70	.09
28. Clayton & Jackson's AF	.21	-.11	.08	-.22	-.40	-.43	.55	-.14	-.33	-.18	-.33	.37	-.17	.26	.45	.08	-.30	.34	.12	-.68	-.10	-.28	-.39	.17	.19	.72	.73		1.52	.53	.00	-.14
29. Clayton & Jackson's PF	.11	.02	.04	.02	-.14	.12	.68	.18	-.03	.03	-.20	.14	-.18	.25	.68	.30	-.30	.26	-.22	-.66	.04	-.96	-.68	.35	-.03	1.14	1.46	1.52		.66	-.13	-.01
30. Total True	.12	.42	.58	-.51	-.38	-.03	.33	-.47	.25	.48	.10	.15	-.25	.68	.58	-.06	.05	.06	.17	-.12	1.07	.47	.50	1.13	.88	.91	.55	.53	.66		-.22	.09
31. PRF Infrequency	.21	-.31	-.26	.13	.17	.06	-.04	.08	.02	-.10	-.07	-.15	.25	-.07	-.21	.23	.00	-.16	.04	-.20	-.36	-.30	-.33	.16	.05	-.26	-.70	.00	-.13	-.22		-.11
32. Sex	.52	.03	.32	-.29	-.07	.24	-.32	-.36	-.14	.19	-.09	.08	.25	.35	-.14	.16	.52	-.13	.23	.12	.04	-.07	-.05	-.02	.29	.08	.09	-.14	-.01	.09	-.11	

Note.--Several corrected correlations exceed unity because of sampling error in the reliability estimates and actual correlations.

Table B

Unrotated Factor Loadings of PRF Scales, Response Style Measures, and Sex

Variable	Factor I	II	III	IV	V	VI
PRF Content Scales:						
Abasement	.57	-.28	-.02	-.43	.11	.01
Achievement	.15	.42	.64	.23	-.10	.03
Affiliation	.46	-.53	.23	.19	.13	-.20
Aggression	-.73	-.13	-.26	.28	-.11	-.02
Autonomy	-.69	.21	.21	-.33	.11	-.01
Change	-.38	-.34	.54	-.07	.12	.22
Cognitive Structure	.25	.76	-.23	.26	.20	.11
Defendence	-.67	.27	-.21	.16	-.17	.32
Dominance	-.38	.01	.59	.53	.03	-.15
Endurance	.11	.31	.70	.11	.13	.02
Exhibition	-.33	-.37	.28	.66	.07	-.17
Harmavoidance	.48	.31	-.27	.27	-.20	.00
Impulsivity	-.14	-.86	-.06	-.05	-.04	-.07
Nurturance	.68	-.26	.40	.12	.03	.15
Order	.31	.60	.03	.29	.31	.04
Play	-.19	-.58	-.18	.15	.46	.30
Sentience	.22	-.19	.52	-.10	-.20	.37
Social Recognition	.04	-.11	-.35	.58	-.16	.10
Succorance	.54	-.45	-.24	.41	-.26	.13
Understanding	-.07	.07	.51	-.20	-.42	-.03
Response Style Measures:						
Messick's Ds	.41	.25	.36	.20	.02	-.03
Stricker's SD	.25	.08	.32	.13	-.18	-.24
PRF Desirability	.21	.05	.56	.13	-.02	-.32
Wiggins' Sd	.24	.17	.38	.16	.15	-.02
Marlowe-Crowne SD	.42	.31	.41	-.08	.19	-.11
Wiggins' Rb	.22	-.33	.04	.41	.26	.12
Messick's Ac	.20	.05	.15	.25	-.01	.11
Clayton and Jackson's AF	.31	.14	-.32	.12	.31	.10
Clayton and Jackson's PF	.07	.13	-.10	.13	.40	.21
Total True	.45	.10	.29	.31	.38	-.11
PRF Infrequency	-.11	-.11	-.10	-.14	.11	.14
Sex	.29	-.31	.24	-.21	-.02	.26

Note.--The loadings of the response style measures and sex have been estimated by extension methods.

Table C

Transformation Matrix for Obliquely Rotated PRF Factors

Factor	I	II	III	IV	V	VI
I	.21	.49	-.23	.31	.08	-.05
II	.62	-.22	-.08	-.15	-.06	-.19
III	-.03	.20	.36	-.27	.33	-.15
IV	.31	-.12	.66	.56	-.05	.11
V	.61	.41	.12	-.62	-.31	.77
VI	.33	-.70	-.59	.34	.88	.57

Note.--This transformation matrix, when applied directly to the unrotated factor matrix, yields the obliquely rotated factor solution.